

REMARKS

Applicants respectfully request reconsideration in view of the following remarks. The applicants have incorporated claim 24 into claim 1. In addition, the applicants made it clear that at least Support for amended claim 1 can be found in the examples, and in the original claims 1, 2, 3 and 7. The applicants have rewritten claim 23 into the independent form. The applicants have amended claims 2, 21 and 35 to be consistent with amended claim 1.

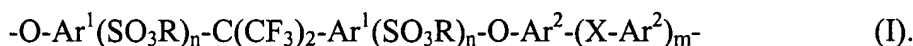
Claims 1, 2, 19-22, 24, 25, 27-30, 32-37 and 39 are rejected under 35 U.S.C. 102(a/e) as being anticipated by Helmer-Metzmann et al. U.S. Patent No. 5,834,566 ("the '566 patent"). Claim 26 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the '566 patent. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over the '566 patent. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ozcayir '334 in view of Bikson et al. U.S. Patent No. 5,364,454 ("the '454 patent"). Claims 28, 38 and 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over the '566 patent in view of Kawakami et al. U.S. Patent No. 4,971,695 ("the '695 patent"). The applicants respectfully traverse these rejections.

Rejections over the '566 patent

Claims 1, 2, 19-22, 24, 25, 27-30, 32-37 and 39 are rejected under 35 U.S.C. 102(a/e) as being anticipated the '566 patent. Claim 26 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the '566 patent. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over the '566 patent. Claims 28, 38 and

41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over the '566 patent in view of the '695 patent.

The applicants' claimed invention requires instant formula (I)



with the proviso that at least one **SO₃R group is present in said backbone.**

Formula (I) requires the presence of a $-C(CF_3)_2-$ group in the polymer backbone which is sulfonated (SO_3R). The polymer backbone is a polyether ketone. Furthermore, the applicants' claimed invention requires an ion exchange capacity of between 0.5 and 3.0 meq ($-SO_3H$)/g of polymer. This feature relates to the amount of SO_3 in the polymer. US '566 discloses **polysulfones** being blended with the polyether ketones and not to the polyether ketone as such. The Examiner will note that **a polysulfone always requires the presence of a $-SO_2-$ group in the polymer backbone, but this group is not required in the applicants' formula (I).** The applicants do require the (SO_3R) in the backbone which is not disclosed in the backbone of the US '566. The applicants also require an ion exchange capacity of between 0.5 and 3.0 meq ($-SO_3H$)/g of polymer which is also not taught by US '566. In view of the above, the applicants believe that their claimed invention is novel and unobvious over US' 566.

US '695 refers to sulfonated polysulfones (polysulfone polymers having a $-SO_2-$ group in the polymer backbone and carrying $-SO_3H$ group from sulfonation). The Examiner states that US '695 teaches polymers containing $-C(CF_3)-$ group in general. This is an unreasonable extension of the teaching given by US '695 which refers to polysulfones. There is no hint given in US '695 (see in particular column 5, lines 13 to 45) which would suggest to a person of ordinary skill in the art to generalize the teaching given by US '695 to all classes of

polymers containing a

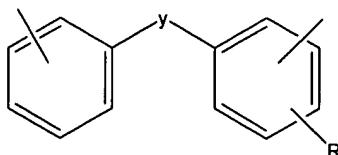
—C(CF₃)— group.

For the above reasons, these rejections should be withdrawn.

Rejection of Claim 40

Claim 40 was rejected under 35 U.S.C. 103(a) as being unpatentable over '334 patent in view of the '454 patent. Claim 40 further limits claim 32 which further limits claim 29. Therefore, claim 40 has all the features of claims 29, 32 and 40. The Examiner did not reject claims 29 and 32 over this ground of rejection.

The material disclosed in the '334 patent are polyimides copolymers in which the comonomer is formed by Ar₂. The definition of Ar₂ allows for



wherein Y can be =C-(CF₃)₂ and R can be —SO₃M (see claim 1). The applicants' claimed invention is different from the '334 patent because the '334 patent requires a polyimide (see the title, Field of Invention, Summary of the Invention, Detailed Description of the Invention and claims) and the applicants' claimed invention is a sulfonated aromatic **polyetherketone** polymer. A polyetherketone polymer is not taught or suggested by the '334 patent.

The material of the applicants' claim 1 shows a reduced swelling in water. Since water is being formed in a fuel cell, the swelling behavior is essential. The '334 patent is further

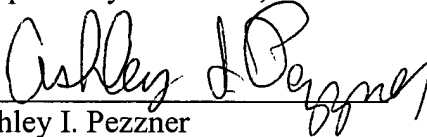
removed from the applicants' claimed invention because, the application in the '334 patent differs from fuel cells (they use it for gas separation where the swelling behavior is uncritical).

The '454 patent was just cited for the film casting. Therefore the secondary reference does render the applicants' claimed invention obvious. For the above reasons, this rejection should be withdrawn.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

No extensional fee is due. The applicants filed a Notice of Appeal on November 1, 2004. Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 03-2775, under Order No. 08577-00038-US from which the undersigned is authorized to draw.

Respectfully submitted,

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Amendment